

## \* NOTICES \*

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CLAIMS

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[Claim(s)]

[Claim 1]A schedule management system comprising:

A mobile station which two or more users have respectively.

A private branch exchange which manages call origination from said mobile station.

Two or more base transceiver stations which enable communication with said mobile station and said private branch exchange via a wireless circuit.

It is a schedule management system constituted by a schedule management apparatus which manages a schedule which connects with said private branch exchange and is registered by said user, It has a means by which said mobile station enables registration of said schedule inputted by said user to said schedule management apparatus, A means which enables public presentation of said registered schedule at the mobile station as a mobile station which registered said schedule with said same schedule management apparatus, or a different mobile station.

[Claim 2]The schedule management system comprising according to claim 1:

A means which said schedule management apparatus stores with a number to which a schedule registered from said mobile station was assigned by said mobile station.

A means to specify said schedule using said number when checking a schedule from said mobile station.

[Claim 3]Group setting information said schedule management apparatus indicates a group who enables public presentation of said schedule to be, And/or, it has a setting-out means to set up priority setup information which shows importance of said schedule, When registering said schedule from said mobile station, said user Said group setting information, Set up said priority setup information and said schedule management apparatus And/or, said group setting information, And/or, the schedule management system according to claim 1 or 2 opening said schedule only to a mobile station which fulfills conditions which said priority setup information shows.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the schedule management system which registration, a check, and deletion are carried out, and enables change of schedules, such as an individual business trip and a meeting, belonging to predetermined groups, such as a company, etc. in an established private-telephone exchange system.

[0002]

[Description of the Prior Art]In the conventional schedule management, the schedule installed in the specific place was used, or the schedule of the on-line using a computer was used, and the schedule of an individual or a predetermined group is managed. An action schedule display is installed in the place by the staying-in-the-room person of an office which can be viewed, a schedule is inputted into JP,6-96368,A from the action schedule display, and what is displayed on the indicator installed in the place which left the schedule finish time of various action modes, etc. is indicated.

[0003]

[Problem(s) to be Solved by the Invention]However, when using the schedule of the on-line using the schedule installed in the specific place, or a computer, the user has to go to the place in which the schedule and the computer are installed, and has to perform scheduled registration, a check, etc. When using the schedule especially installed in the specific place, the schedule of contents with the confidentiality which must not be known by those who do not belong to a predetermined group cannot be filled in.

[0004]If it does not go by the action schedule display currently indicated by JP,6-96368,A to forward [ of the device main frame by which fixed installation was carried out ], registration, deletion, etc. of a schedule are impossible, and the check of a schedule is impossible if it does not go to the position which can be seen. Therefore, registration, a check, and deletion are not performed and a change of a schedule, etc. cannot be made in another room, for example.

Although confidentiality is improved by symbolizing schedule contents in a color or a number, there are problems, like it is unclear also for the person belonging to a group.

[0005]In order to solve the above-mentioned problem, an object of this invention is to provide the schedule management system whose registration, check, deletion, change, etc. of a schedule are attained from an un-specific place. It aims at providing the schedule management system which limits the user who exhibits the schedule according to the confidentiality of a schedule.

[0006]

[Means for Solving the Problem]In order to attain the above-mentioned purpose, a schedule management system of this invention, A schedule management apparatus is arranged to an established private-telephone exchange system, a schedule of an individual or a predetermined group can be registered on radio from mobile stations, such as PHS, without limiting a place, and it enables it to check a schedule from a mobile station further.

[0007]Namely, a mobile station which two or more users have respectively according to this invention and a private branch exchange which manages call origination from said mobile station, Two or more base transceiver stations which enable communication with said mobile station and said private branch exchange via a wireless circuit, It is a schedule management system constituted by a schedule management apparatus which manages a schedule which connects

with said private branch exchange and is registered by said user, It has a means by which said mobile station enables registration of said schedule inputted by said user to said schedule management apparatus, A schedule management system which has a means which enables public presentation of said registered schedule in the mobile station as a mobile station which registered said schedule with said same schedule management apparatus, or a different mobile station is provided.

[0008]A means which said schedule management apparatus stores with a number to which a schedule registered from said mobile station was assigned by said mobile station, It is a desirable mode of this invention to have a means to specify said schedule using said number, when checking a schedule from said mobile station.

[0009]Group setting information said schedule management apparatus indicates a group who enables public presentation of said schedule to be, And/or, it has a setting-out means to set up priority setup information which shows importance of said schedule, When registering said schedule from said mobile station, said user Said group setting information, And/or, said priority setup information is set up and it is a desirable mode of this invention that said schedule management apparatus opens said schedule only to a mobile station which fulfills conditions which said group setting information and/or said priority setup information show.

[0010]

[Embodiment of the Invention]Hereafter, the embodiment concerning the schedule management system of this invention is described, referring to drawings. Drawing 1 is one embodiment concerning the schedule management system of this invention. The mobile station (PHS:Personal Handy-phone.) whose schedule management systems of this invention are the private branch exchange (PBX:Private Branch eXchange) 101 and mobile telephone terminals which each user has It is constituted by the base transceiver station 103 for carrying out radio to System102 and PHS102, and the schedule management apparatus 104 which manages a schedule with various directions from PHS102. The mobile station 102 and the base transceiver station 103 can be extended if needed.

[0011]Drawing 2 is a lineblock diagram of the schedule management apparatus shown in drawing 1. The schedule management apparatus 104 the schedule managed by the controller 201 which controls the schedule management apparatus 104 whole, the schedule management function means 202 which manages the schedule itself, and the schedule management function means 202, By the speech information conversion function means 203 and the schedule management function means 202 which are changed into a sound according to directions of the controller 201. By the text conversion function means 204 and the schedule management function means 202 which change the schedule managed into text according to directions of the controller 201. It is constituted by the group management function means 205 which manages the schedule managed hierarchical per a group and priority levels. Change of setting out [ in / based on extension of PHS102 and the base transceiver station 103 / the group management function means 205 ] is possible.

[0012]First, operation of the schedule management apparatus 104 is explained in detail. It is preferred to use a DTMF signal (DialTone Multi Frequency: touch-tone phone audio signal) for the information inputting from PHS102 in operation of a schedule or information selection. In this case, it is necessary to set up correspondence with a DTMF signal and each processing beforehand in the schedule management apparatus 104. It is possible also for a user changing the information which enabled the input of information in the voice and was inputted by the voice into the format which can process the speech information conversion function means 203, and further, It is able for PHS102 to have a browser which can process text and to perform data transmission and reception with the schedule management apparatus 104 with packet communication.

[0013]In the case of registration of a schedule, or deletion, the schedule management function means 202 and the group management function means 205 are used, and registration or deletion of a schedule is performed at it. The schedule which processes the speech information and/or the text which were inputted from PHS102 with the controller 201 in the case of the check of a schedule and for which a user asks is judged, The schedule is changed using the speech information conversion function means 203 and/or the text conversion function means 204, and

it transmits to PHS102. The controller 201 has the function to delete automatically the schedule over which the predetermined date passed.

[0014]Next, the group setting information and priority setup information which are set up to each schedule and each PHS102 are explained. Group setting information is information set up, for example corresponding to each post in the inside of a company. Priority setup information is information which shows the grade of the importance (priority) in each schedule or each PHS102.

[0015]Drawing 7 is a mimetic diagram showing one example of the correspondence relation between the group setting information in a schedule and PHS, and priority setup information. Two groups, "GA" and "GB", shall exist and the importance of the three-stage of "Lv0", "Lv1", and "Lv2" shall be set up. "Lv0" shall be an upper level (what has high importance), and "Lv2" shall be set to a lower level (what has low importance).

[0016]Group setting information and priority setup information are set to each schedule. For example, group setting information "GA" and priority setup information "Lv2" are set to the schedule 1, and on the schedule 2. Group setting information "GB" and priority setup information "Lv0" are set up, and group setting information "GA", "GB", and priority setup information "Lv1" are set to the schedule 3. These will be expressed as the schedule 1 "GA-Lv2", the schedule 2 "GB-Lv0", the schedule 3 "GA-Lv2", and "GB-Lv1."

[0017]On the other hand, group setting information and priority setup information are beforehand set also as each PHS102. For example, group setting information "GA" and priority setup information "Lv1" are set to PHS-A, and it is group setting information in PHS-B. "GB" and priority setup information "Lv2" are set up. Group setting information "GA" and "GB" are set to PHS-C, and priority setup information "Lv2" is set to it for priority setup information "Lv1" about group setting information "GB" about group setting information "GA." these -- PHS-A "GA-Lv -- one -- " -- PHS-B "GB-Lv -- two -- " -- PHS-C "GA-Lv -- one -- GB-Lv -- two -- " -- expressing -- things -- carrying out .

[0018]When the schedule management apparatus 104 receives the demand of a check of a schedule from PHS102, Only the schedule belonging to the same group as the group to whom the PHS102 belongs is exhibited, and a schedule is made into disclosure about the schedule belonging to a different group from the group to whom the PHS102 belongs.

[0019]In addition to group setting information, refer to the priority setup information for the schedule management apparatus 104. When the schedule management apparatus 104 receives the demand of a check of a schedule from PHS102, Only the schedule which has the same priority as the priority which the PHS102 has, or a low-ranking priority is exhibited, and a schedule is made into disclosure about the schedule which has a priority of a higher rank from the priority which the PHS102 has.

[0020]The schedule management apparatus 104 is carried out as [ exhibit / only to the same or PHS102 which is a higher rank / identically / group setting information / priority setup information / the schedule ]. Therefore, although the check of the schedules 1 and 3 from PHS-A is possible, the check of the schedule 2 is impossible and all of the schedules 1-3 are impossible for a check in the above-mentioned example, from PHS-B, for example. Although the check of the schedules 1 and 3 from PHS-C is possible, the check of the schedule 2 is impossible. About the check of the schedule 3 from \*\*\*\* \*\*PHS-C, the check of setting out "GA-Lv1" of PHS-C is attained due to setting out "GA-Lv2" of a schedule.

[0021]Group setting information shows each post of a company, for example, and further priority setup information, For example, it becomes possible by showing the importance of the still finer group division in each group, and the information in a group to set up finely the schedule which cannot check the schedule which can be checked from each PHS102. As mentioned above, the schedule management apparatus 104 realizes a hierarchization security system by managing combining group setting information and priority setup information. It is preferred to set up so that a check, deletion, change, etc. of a schedule may be attained from PHS102 which was not concerned with group setting information or priority setup information, but registered the schedule. Even when the schedule of PHS102 to "Lv1" set as "Lv2" by this is registered, it becomes possible to check, delete and change the schedule.

[0022]Operation concerning <a user's attestation>, next the schedule management system of

this invention is explained. Attestation of the user for performing processing relevant to a schedule first is explained. Drawing 3 is a flow chart for explaining operation of the user authentication for the processing relevant to the schedule concerning the schedule management system of this invention. In Step S1, the user who registration, a check, and deletion are performed and tries to make a change of a schedule, etc. performs an extension call to the schedule management apparatus 104 using PHS102. Under the present circumstances, the extension call from PHS102 will reach the private branch exchange 101 via the base transceiver station 103, and the private branch exchange 101 will call the schedule management apparatus 104.

[0023]In Step S2, the schedule management apparatus 104 acquires the extension number of PHS102 which performed the extension call. It is necessary to set up so that the extension number of the PHS102 may be notified to the private branch exchange 101 from PHS102 which performed the extension call. In Step S3, the schedule management apparatus 104 reports the guidance which requires a password from PHS102, and a user inputs the password beforehand set up from PHS102. This password is beforehand set up corresponding to the extension number of PHS102, and in order that the user who does not know the password corresponding to the extension number of that PHS102 may make schedule processing using that PHS102 impossible, it is set up.

[0024]In step S4, the schedule management apparatus 104 judges whether a password is the right with reference to the matching information of the extension number and password which were stored in the predetermined database. A password makes it selectable any of processings of a schedule, such as registration, a check, deletion, change, etc. of a user's schedule, to perform in Step S5 at a right case. On the other hand, when a password is not right, in Step S6, to PHS102, an error message is reported, the input of a password is required again or the circuit of PHS102 is cut.

[0025]When choosing any of operations, such as schedule registration, a check, deletion, and change, a user performs, it is preferred to, make each processing and the audio signal (DTMF signal) of the touch-tone phone of PHS102 correspond for example. Thereby, when a user inputs, the schedule management apparatus 104 becomes possible [judging the processing which the user performs]. In this case, the schedule management apparatus 104, For example, it is preferred to report guidance of "when registering a schedule, checking a schedule for 1, deleting a schedule for 2 and you change a schedule for 3, please push 4."

[0026]<Registration of schedule> drawing 4 is a flow chart for explaining operation of registration of the schedule concerning the schedule management system of this invention. When registering a schedule, it is indispensable that attestation of the user who shows drawing 3 is performed normally. In Step S11, a user chooses registration of a schedule by keystroke. And in Step S12, the time of a schedule, the contents of the schedule, group setting information, priority setup information, etc. are inputted. Registration of this schedule can be [registration] good also as possible because a user chooses the schedule contents beforehand set as the schedule management apparatus 104, and can also register a schedule by the keystroke from PHS102. It is also possible to change into the information that a user's voice can be processed by the speech information conversion function means 203, and to register it as a schedule, and it is also still more possible to register a user's voice as a schedule as it is.

[0027]<A check of a schedule>, next the check of a schedule are explained. Drawing 5 is a flow chart for explaining operation of a check of the schedule concerning the schedule management system of this invention. When checking a schedule, it is indispensable that attestation of the user who shows drawing 3 is performed normally. In Step S21, a user chooses operation of a check of a schedule by keystroke. When the check of a schedule is chosen, in Step S22, the schedule management apparatus 104 reports an inquiry "a schedule [whom] is checked" to PHS102. In Step S23, a user inputs the extension number of PHS102 of the user who wants to check a schedule, a predetermined group's extension number, etc.

[0028]Like the case where the schedule of other users or a predetermined group is checked, if its extension number is inputted at Step S23, it is possible to check one's schedule. However, the key for checking one's schedule, for example is provided, When a user inputs the key at Step S21, or the extension number for checking one's schedule is provided independently and a user

inputs the key at Step S23, it is also possible to enable it to check a schedule of one.

[0029]The schedule management apparatus 104 checks the existence of the schedule corresponding to the extension number inputted at Step S23 in Step S24. In this case, the controller 201 checks the existence of a schedule using the schedule management function means 202. In order to make the schedule which a user wants to check before and after this step S24 narrow down, it is preferred to make a user input the information which specifies schedules, such as time of a schedule.

[0030]When a schedule exists, it is judged whether the schedule management apparatus 104 can open the schedule to PHS102 of a user in Step S25. In this case, the controller 201 uses the group management function means 205, performs the check of the group setting information concerning that schedule, and priority setup information, and compares with the group setting information and priority setup information which were set as PHS102 of a user.

[0031]For example, the group setting information set as the schedule and the group setting information set as PHS102 of a user are the same (.). Namely, the same group and the priority setup information further set as the schedule. It is lower than the priority setup information set as PHS102 of a user (.). That is, it is judged at the priority setup information case set as PHS102 of a priority setup information  $\leq$  user set as the schedule that the schedule may be opened to PHS102 of a user. The group setting information set as the schedule, for example, The case where the group setting information set as PHS102 of a user differs, In the case of the priority setup information etc. which were set as PHS102 of a priority setup information  $>$  user set as the schedule, it is judged that the schedule cannot be opened to PHS102 of a user.

[0032]When it is judged that the schedule may be opened to PHS102 of a user at Step S25, in Step S26, the schedule is reported to PHS102. Under the present circumstances, PHS102 which checks the informing means which PHS102 has, for example, has only a voice output means is received, It is also possible to change a schedule into a character and to transmit by the text conversion function means 204, to PHS102 which changes a schedule into a sound by the speech information conversion function means 203, for example, has only a text output means.

[0033]When it was judged on the other hand that a schedule did not exist at Step S24, or when it is judged that the schedule cannot be opened to PHS102 of a user at Step S25, In Step S27, the error message of "a schedule does not exist", "the schedule not being exhibited", etc. is reported to PHS102.

[0034]<Deletion of a schedule>, next deletion of a schedule are explained. Various modes, such as deletion \*\*\*\* of a schedule, are possible only for the user in whom only the schedule which can check which user's schedule of the deletion possibility of all the schedules of and the above was able to lodge the deletion possibility of and predetermined power about deletion of a schedule. Below, a user explains the mode which can delete only the schedule which can check a schedule.

[0035]Drawing 6 is a flow chart for explaining operation of deletion of the schedule concerning the schedule management system of this invention. When deleting a schedule, it is indispensable that attestation of the user who shows drawing 3 is performed normally. In Step S31, a user chooses operation of deletion of a schedule by keystroke. When deletion of a schedule is chosen, in Step S32, the schedule management apparatus 104 reports an inquiry of "which schedule is deleted" to PHS102. In Step S33, a user inputs the extension number of PHS102 of the user who wants to check a schedule, a predetermined group's extension number, etc.

[0036]In order to delete a schedule, there is the necessity of checking whether it having the authority to delete the check of the existence of a schedule and the schedule which is the targets of deletion. Processing at these steps S34 and S35 is the same as processing at Steps S24 and S25 of the flow chart of a check of the schedule shown in drawing 5, and since it is explaining in detail in the check of a schedule, explanation is already omitted. In [ the case where it is judged that a schedule does not exist at Step S34, and when it is judged that there is no authority to delete the schedule from PHS102 of a user at Step S35 ] Step S39, The error message of "a schedule does not exist", "the schedule not being deleted", etc. is reported to PHS102.

[0037]The schedule which is the target of deletion is specified at the above-mentioned steps S34 and S35. Next, the schedule management apparatus 104 reports guidance of reconfirmation

of "whether to delete this schedule" to PHS102 in Step S36. When a user wants to choose O.K. to an inquiry of Step S36, in Step S37, the information corresponding to the deletion O.K. is inputted and the schedule management apparatus 104 deletes the schedule in Step S38. the \*\* which does not delete a schedule on the other hand when a user chooses NO to an inquiry of Step S36 -- an end -- becoming (it illustrates in drawing 6) -- or -- for example, it returns to Step S32 (un-illustrating), and enables it to change selection of the schedule which is the target of deletion

[0038]About each element, such as a date of the schedule after specifying the target schedule [ operation of change of a schedule is also almost the same as operation of deletion of a schedule, and ], contents group setting information, priority setup information, It is preferred to enable it to change independently, respectively.

[0039]

[Effect of the Invention]Since the schedule which arranges a schedule management apparatus to an established private-telephone exchange system, and is registered from a mobile station with this schedule management apparatus is managed according to this invention as explained above, It becomes possible to register the schedule of an individual or a predetermined group on radio from mobile stations, such as PHS which exists in the range in which communication with the installed base transceiver station is possible, and it becomes possible further from a mobile station to check a schedule.

[0040]Since operation of a schedule management system is attained by installing the schedule management apparatus which manages a schedule to an established private-telephone exchange system according to this invention, two or more users only by easy installation work -- and -- or it enables a predetermined group to check a mutual schedule.

[0041]According to this invention, since a schedule management apparatus is stored with the number to which the schedule registered from a mobile station was assigned by the mobile station, it becomes possible from which mobile station to specify the schedule of whether the schedule was registered, which user, or a group, etc.

[0042]Since group setting information and priority setup information are set as a schedule according to this invention, it becomes possible to open the schedule only to the mobile station which fulfills the conditions which group setting information and priority setup information show.

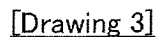
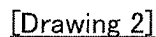
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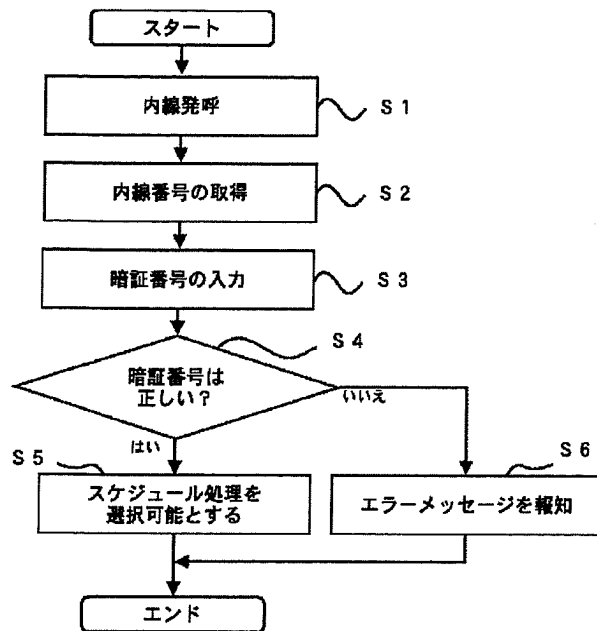
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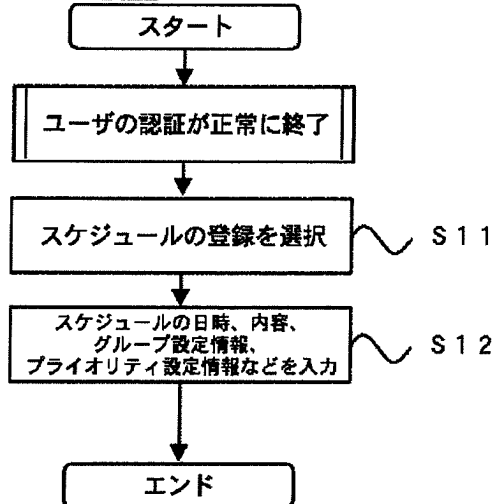
[Drawing 1]



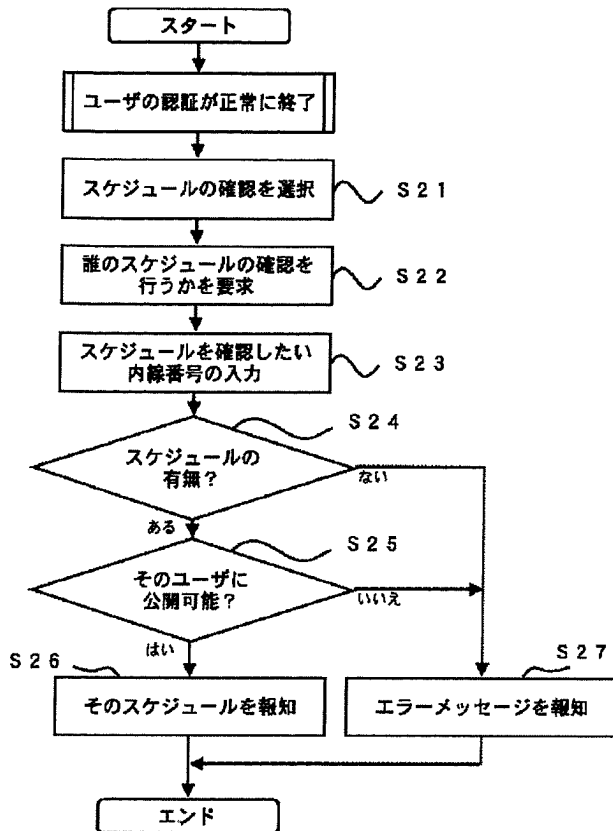




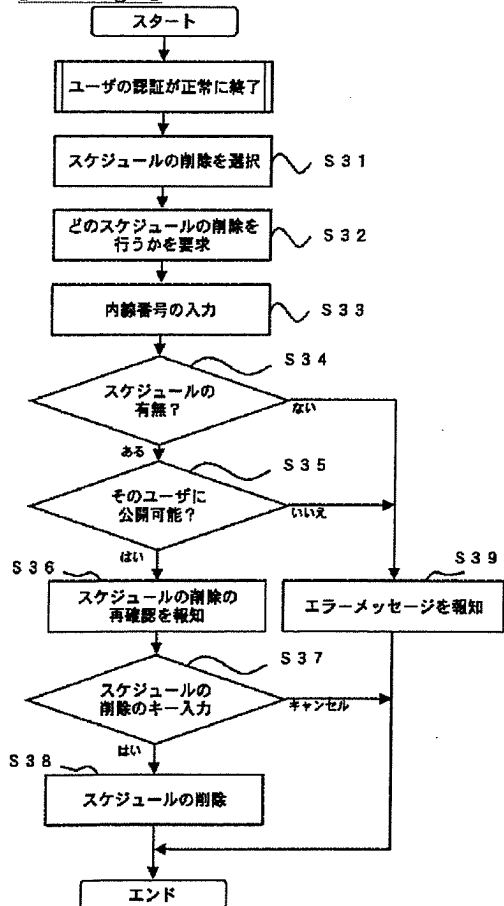
[Drawing 4]



[Drawing 5]



[Drawing 6]



[Drawing 7]

スケジュール及びPHSにおける  
グループ設定情報及びプライオリティ設定情報

スケジュール	グループ 設定情報	プライオリティ 設定情報
スケジュール1	GA	L v 2
スケジュール2	GB	L v 0
スケジュール3	GA, GB	L v 2 (GA) L v 1 (GB)

PHS	グループ 設定情報	プライオリティ 設定情報
PHS-A	GA	L v 1
PHS-B	GB	L v 2
PHS-C	GA, GB	L v 1 (GA) L v 2 (GB)

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